

Listing of Claims:

1. (Currently amended) A white-emitting LED with a defined color temperature, designed as a luminescence conversion LED, comprising:

a primary radiation source, which is a chip that emits in the blue spectral region;

a layer of first and second phosphors in front of said source, both of which phosphors partially convert the radiation of the chip;

wherein the first phosphor is from the class of the oxynitridosilicates having a cation M and the empirical formula $M_{(1-x)}Si_2O_2N_2:D_c$, where M comprises Sr as the main constituent and D is doped with divalent Europium, M = Sr or M = $Sr_{(1-x-y)}Ba_yCa_x$ with $0 \leq x+y < 0.5$ being used, the oxynitridosilicate completely or predominantly comprising a high-temperature-stable modification HT, the oxynitridosilicate comprising less than 100 ppm tungsten impurity and less than 100 ppm cobalt impurity; and

wherein the second phosphor is a nitridosilicate of formula $(Ca,Sr)_2Si_5N_8:Eu$, producing a color temperature of from 2300 to 7000 K and at the same time achieving a color rendering of Ra >90.

2. (Previously presented) The LED as claimed in claim 1, wherein in the oxynitridosilicate the Eu fraction makes up between 0.1 and 20 mol% of M.

3. (Previously presented) The LED as claimed in claim 1, wherein a proportion of M is replaced by Ba and/or Ca and/or Zn.

4-7. (Cancelled)

8. (Previously presented) The LED as claimed in claim 1, wherein the LED is dimmable.

9. (Previously presented) The LED as claimed in claim 1, wherein the LED has a color temperature of from 2700 to 3300 K.

10. (Original) The LED as claimed in claim 1, wherein the LED achieves the white luminous color by color mixing with the RGB principle, with the primary emission of the blue LED having a peak wavelength of from 430 to 470 nm.

11. (Original) The LED as claimed in claim 10, wherein the emission from the chip has a peak wavelength in the range from 450 to 465 nm.

Claim 12. (Cancelled).

13. (Previously presented) The LED as claimed in claim 1, wherein the nitridosilicate contains Sr as a permanent component, and Ca in a proportion of from 0 to 60 mol%.

14. (Previously presented) The LED as claimed in claim 1, wherein the emission of the nitridosilicate has a dominant wavelength λ_{dom} in the range from 620 to 660 nm.

15. (Cancelled).

16. (Previously presented) An illumination system having the LED as claimed in claim 1, wherein the system includes electronics for driving the individual LEDs or groups of LEDs.

17. (Previously presented) The illumination system as claimed in claim 16, wherein the electronic control includes means which impart dimmability.

Claims 18-19 (Cancelled).

20. (Previously presented) The LED as claimed in claim 3, wherein the proportion of M replaced by Ba and/or Ca and/or Zn is up to 30 mol%.

21. (Currently amended) A white-emitting LED with a defined color temperature, designed as a luminescence conversion LED, comprising:

a primary radiation source, which is a chip that emits in the blue spectral region;

a layer of first and second phosphors in front of said source, both of which phosphors partially convert the radiation of the chip;

wherein the first phosphor is from the class of the oxynitridosilicates having a cation M and the empirical formula $M_{(1-c)}Si_2O_2N_2:D_c$, where M comprises Sr as the main constituent and D is doped with divalent Europium, M = Sr or M = $Sr_{(1-x-y)}Ba_yCa_x$ with $0 \leq x+y < 0.5$ being used, the oxynitridosilicate completely or predominantly comprising a high-temperature-stable modification HT, the oxynitridosilicate comprising less than 100 ppm tungsten impurity and less than 100 ppm cobalt impurity;

wherein the second phosphor is a nitridosilicate of formula $(\text{Ca},\text{Sr})_2\text{Si}_5\text{N}_8:\text{Eu}$, producing a color temperature of from 2300 to 7000 K and at the same time achieving a color rendering of at least $\text{Ra} = 80$; and

wherein a proportion of M is replaced by Li and/or La and/or Na and/or Y.

22. (Previously presented) The LED as claimed in claim 21, wherein the proportion of M replaced by Li and/or La and/or Na and/or Y is up to 30 mol%.

23. (Currently amended) A white-emitting LED with a defined color temperature, designed as a luminescence conversion LED, comprising:

a primary radiation source, which is a chip that emits in the blue spectral region;

a layer of first and second phosphors in front of said source, both of which phosphors partially convert the radiation of the chip;

wherein the first phosphor is from the class of the oxynitridosilicates having a cation M and the empirical formula $\text{M}_{(1-x)}\text{Si}_2\text{O}_2\text{N}_2:\text{D}_e$, where M comprises Sr as the main constituent and D is doped with divalent Europium, M = Sr or M = $\text{Sr}_{(1-x-y)}\text{Ba}_y\text{Ca}_x$ with $0 \leq x+y < 0.5$ being used, the oxynitridosilicate completely or predominantly comprising a high-temperature-stable modification;

the second phosphor is a nitridosilicate of formula $(\text{Ca},\text{Sr})_2\text{Si}_5\text{N}_8:\text{Eu}$, producing a color temperature of from 2300 to 7000 K and at the same time achieving a color rendering of at least $\text{Ra} = 80$; and

a proportion of the Si atoms SiN-group in the empirical formula for said first phosphor is replaced by AlO Al atoms, a proportion of the N atoms in the empirical formula for said first

phosphor is replaced by O atoms, and the proportion of the Si atoms that are replaced by Al atoms and the proportion of N atoms that are replaced by O atoms are in the same molar amount.

24. (Currently amended) The LED as claimed in claim 23, wherein the proportion of the Si atoms that are replaced by the Al atoms SiN group in the empirical formula for said first phosphor replaced by AlO is and the portion of the N atoms that are replaced by the O atoms are both up to 30 mol %.

25. (Currently amended) A white-emitting LED with a defined color temperature, designed as a luminescence conversion LED, comprising:

a primary radiation source, which is a chip that emits in the blue spectral region;
a layer of first and second phosphors in front of said source, both of which phosphors partially convert the radiation of the chip;

wherein the first phosphor is from the class of the oxynitridosilicates having a cation M and the empirical formula $M_{(1-x)}Si_2O_2N_2:D_c$, where M comprises Sr as the main constituent and D is doped with divalent Europium, M = Sr or M = $Sr_{(1-x-y)}Ba_yCa_x$ with $0 \leq x+y < 0.5$ being used, the oxynitridosilicate completely or predominantly comprising a high-temperature-stable modification HT, the oxynitridosilicate comprising less than 100 ppm tungsten impurity and less than 100 ppm cobalt impurity;

the second phosphor is a nitridosilicate of formula $(Ca,Sr)_2Si_5N_8:Eu$, producing a color temperature of from 2300 to 7000 K and at the same time achieving a color rendering of at least Ra = 80; and

a proportion of Europium in the first phosphor is replaced by Mn.

26. (Previously presented) The LED as claimed in claim 25, wherein the proportion of Europium replaced by Mn is up to 30 mol %.

27. (Currently amended) A white-emitting LED with a defined color temperature, designed as a luminescence conversion LED, comprising:

a primary radiation source, which is a chip that emits in the blue spectral region;

a layer of first and second phosphors in front of said source, both of which phosphors partially convert the radiation of the chip;

wherein the first phosphor is from the class of the oxynitridosilicates having a cation M and the empirical formula $M_{(1-c)}Si_2O_2N_2:D_c$, where M comprises Sr as the main constituent and D is doped with divalent Europium, M = Sr or M = $Sr_{(1-x-y)}Ba_yCa_x$ with $0 \leq x+y < 0.5$ being used, the oxynitridosilicate completely or predominantly comprising a high-temperature-stable modification HT, the oxynitridosilicate comprising less than 100 ppm tungsten impurity and less than 100 ppm cobalt impurity; and

the second phosphor is a nitridosilicate of formula $(Ca,Sr)_2Si_5N_8:Eu$, producing a color temperature of from 2300 to 7000 K and at the same time achieving a color rendering of at least Ra = 80; and

the chip is an InGaN chip.

28 (Currently amended). A white-emitting LED with a defined color temperature, designed as a luminescence conversion LED, comprising:

a primary radiation source, which is a chip that emits in the blue spectral region;

a layer of first and second phosphors in front of said source, both of which phosphors partially convert the radiation of the chip;

wherein the first phosphor is from the class of the oxynitridosilicates having a cation M and the empirical formula $M_{(1-x)}Si_2O_2N_2:D_e$, where M comprises Sr as the main constituent and D is doped with divalent Europium, M = Sr or M = $Sr_{(1-x-y)}Ba_yCa_x$ with $0 \leq x+y < 0.5$ being used, the oxynitridosilicate completely or predominantly comprising a high-temperature-stable modification HT, the oxynitridosilicate comprising less than 100 ppm tungsten impurity and less than 100 ppm cobalt impurity;

the second phosphor is a nitridosilicate of formula $(Ca,Sr)_2Si_5N_8:Eu$, producing a color temperature of from 2300 to 7000 K and at the same time achieving a color rendering of at least $Ra = 80$; and

the emission of the oxynitridosilicate has a dominant wavelength λ_{dom} in the range from 550 to 570 nm.